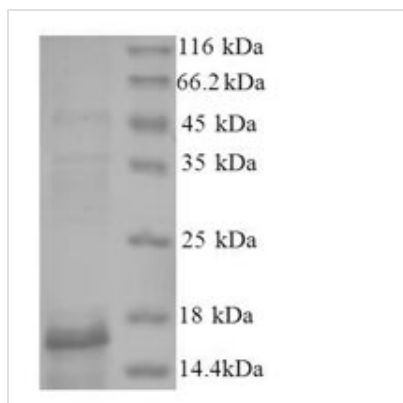




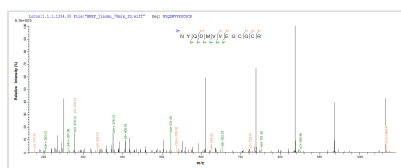
# Recombinant Human Bone morphogenetic protein 2 (BMP2)

<b>Product Code</b>	CSB-EP002736HU
<b>Relevance</b>	Induces cartilage and bone formation.
<b>Abbreviation</b>	Recombinant Human BMP2 protein
<b>Storage</b>	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
<b>Uniprot No.</b>	P12643
<b>Alias</b>	Bone morphogenetic protein 2A ;BMP-2A
<b>Product Type</b>	Recombinant Protein
<b>Immunogen Species</b>	Homo sapiens (Human)
<b>Purity</b>	Greater than 90% as determined by SDS-PAGE.
<b>Sequence</b>	QAKHKQRKRLKSSCKRHPLYVDFSDVGWNDWIVAPPGYHAFYCHGECPFPL ADHLNSTNHAIVQTLVNSVNSKIPKACCVPTELSAISMLYLDENEKVVVLKNYQD MVVEGCGCR
<b>Research Area</b>	Developmental Biology
<b>Source</b>	E.coli
<b>Target Names</b>	BMP2
<b>Expression Region</b>	283-396aa
<b>Notes</b>	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
<b>Tag Info</b>	N-terminal 6xHis-tagged
<b>Mol. Weight</b>	16.9kDa
<b>Protein Length</b>	Full Length of Mature Protein

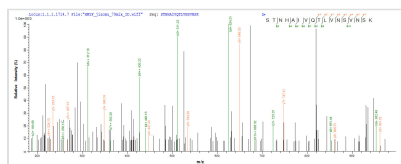
## Image



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP002736HU could indicate that this peptide derived from E.coli-expressed Homo sapiens (Human) BMP2.



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP002736HU could indicate that this peptide derived from E.coli-expressed Homo sapiens (Human) BMP2.

## Description

Recombinant human BMP2 protein production in E. coli begins with cloning the target gene tagged with an N-terminal 6xHis gene into an expression vector and transforming it into E. coli cells. The target gene encodes the full length of mature human BMP2 (283-396aa). These cells are cultured to express the BMP2 protein. After cell lysis, the BMP2 protein is purified using affinity chromatography. Protein purity is checked using SDS-PAGE, exceeding 90%.

BMP2, a member of the TGF- $\beta$  superfamily, mediates multiple cell functions and fates [1]. BMP2 has promoted human trophoblast invasion and endothelial-like tube formation [2]. It is expressed in human ovarian follicles and the corpus luteum, regulating follicle development and luteal function [3]. Studies have shown that BMP2 regulates cell adhesion and extracellular matrix transformation in the human endometrium [4][5].

Furthermore, BMP2 is present in the human normal mammary gland, where it, along with BMP4, modulates mammary stem/progenitor cell fate [6]. BMP2 has been linked to regulating follicular steroidogenesis and producing brain-derived neurotrophic factors in granulosa-lutein cells [7].

### References:

- [1] J. Li, Z. Zhang, H. Yu, A. Yang, P. Hu, Z. Liu et al., Long noncoding rna c21orf121/bone morphogenetic protein 2/microrna?140?5p gene network promotes directed differentiation of stem cells from human exfoliated deciduous teeth to neuronal cells, *Journal of Cellular Biochemistry*, vol. 120, no. 2, p. 1464-1476, 2018. <https://doi.org/10.1002/jcb.27313>
- [2] Y. Yi, H. Zhu, C. Klausen, & P. Leung, Transcription factor sox4 facilitates bmp2?regulated gene expression during invasive trophoblast differentiation, *The FASEB Journal*, vol. 35, no. 12, 2021. <https://doi.org/10.1096/fj.202100925rr>
- [3] X. Luo, H. Chang, Y. Yi, & Y. Sun, Bone morphogenetic protein 2 inhibits growth differentiation factor 8-induced cell signaling via upregulation of gremlin2 expression in human granulosa-lutein cells, *Reproductive Biology and Endocrinology*, vol. 19, no. 1, 2021. <https://doi.org/10.1186/s12958-021-00854-6>
- [4] , In celebration of women in molecular and cellular reproduction,, 2024. <https://doi.org/10.3389/978-2-8325-4893-6>
- [5] H. Chang and H. Zhu, Bmp2 suppresses the production of pentraxin 3 in human endometrial stromal and decidual stromal cells, *The FASEB Journal*, vol. 36, no. 5, 2022. <https://doi.org/10.1096/fj.202200081rr>



[6] M. Chapellier, É. Bachelard-Cascales, X. Schmidt, F. Clément, I. Treilleux, E. Delayet al., Disequilibrium of bmp2 levels in the breast stem cell niche launches epithelial transformation by overamplifying bmp1b cell response, Stem Cell Reports, vol. 4, no. 2, p. 239-254, 2015.

<https://doi.org/10.1016/j.stemcr.2014.12.007>

[7] L. Bai, H. Chang, L. Zhang, Y. Zhu, & P. Leung, Bmp2 increases the production of bdnf through the upregulation of probdnf and furin expression in human granulosa?lutein cells, The FASEB Journal, vol. 34, no. 12, p.

16129-16143, 2020. <https://doi.org/10.1096/fj.202000940r>

---

#### Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL. We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

---

#### Shelf Life

The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself.

Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.